Emergency Response for Floods
Cleaning Automatic Ice Making Equipment

Criteria

If an ice-making machine has been contaminated by flood waters;
Or the water supply to the machine has been contaminated;
Then the ice-making machine should be emptied, cleaned and sanitized before returning it to production.

Contents

This memorandum details the cleaning and sanitizing procedures for the following types of automatic ice-making equipment:

a. Commercial units with removal ice contact surfaces
b. Commercial units with non-removable ice contact surfaces
c. Residential units

Note: In all cases the manufacturer's recommended cleaning procedures should be followed if available.

Step A

A.1 Determine if the existing water supply is safe

Water Supply Status

a. Public Water Supply - contact the water company

b. Private well - determine if the well has been covered by floodwater, or if floodwaters have been nearby. If so, the well could be contaminated. Contact your local health department or environmental health agency for information on well disinfection.

Step B

B.1 If the water supply is safe for drinking, proceed to one of the following steps:

Safe Water Supply

a. Commercial ice machines with removal ice contact surfaces - refer to Procedure 1
b. Commercial ice machines without removable ice contact surface - refer to Procedure 2
c. Residential ice makers - refer to Procedure 3

B.2 If the water supply is contaminated or subject to a "boil" order, then:

Contaminated Water Supply

a. Disconnect the unit from electrical power
b. Remove and discard any stored ice
c. Drain water from the machine
d. Do not initiate cleaning and sanitizing procedures until the water supply is safe.

If the ice maker contains removable ice contact surfaces, then:

Procedure 1
Commercial-
Removable

1.1 If available, follow the manufacturer's recommended cleaning procedure, or:

1.2 Run the unit through 2 or 3 freezing cycles. This should insure that water entering the unit is safe.

Option: If the water supply line to the machine can be drained and flushed by disconnecting it or bypassing the machine, the freezing cycle can be skipped. Drain enough water to thoroughly flush the incoming water line; a 20-30 second run should suffice.

1.3 Turn the water supply off
1.4 Disconnect the unit from electrical power (recommended)
1.5 Remove and discard any ice
1.6 Remove all ice-contact parts of the machine and,
   a. Wash in hot, soapy water
   b. Rinse in clean water
   c. Sanitize for at least two minutes in a solution of one ounce of household bleach per three gallons of water (approximately 100 parts-per-million available chlorine)
1.7 Reassemble the unit and re-start machine

If the icemaker does not contain removable ice-contact surfaces or is designed to be cleaned in place, then

Procedure 2
Commercial-
Non-removable

Note: In equipment where ice contact surfaces are not readily removable, the tubing, pipe, fittings and valves are required to be arranged so cleaning and sanitizing solutions can be circulated throughout the fixed system. (See National Sanitation Foundation, Standard 12, Section 4.2, Automatic Ice Making Equipment)

2.1 If available, follow the manufacturer's recommended cleaning procedure, or:
2.2 Run the unit through 2 or 3 freezing cycles or flush the water supply line (See Procedure 1.2)
2.3 Turn off the water supply.
2.4 Drain the machine
2.5 Circulate a cleaning solution of warm soapy water for two minutes; drain system.
2.6 Circulate clean water rinse for two minutes; drain system.
2.7 Circulate a sanitizing solution containing one ounce of household bleach per three gallons of water. Ensure at least two minutes of contact time.
2.8 Drain the system
2.9 Wash, rinse, and sanitize the ice storage bin
2.10 Return the drain valves to their normal operating positions and restart system.

Procedure 3
Residential Unit

3.1 Determine if the ice maker is removable

a. If removable:

1) Run the icemaker through 2 - 3 freezing cycles or flush the water supply line. (See Procedure 1.2) (A longer flushing time should be used for refrigerators with a built-in water dispenser to ensure that the water storage tank is completely flushed.)
2) Turn the water supply off
3) Disconnect the unit from electrical power (recommended)
4) Remove the ice storage bin and icemaker unit
5) Wash, rinse, and sanitize the ice maker and storage bin (See Procedure 1.6.c)
6) Reinstall the units and return the icemaker to service

b. If not removable:

1) Run the icemaker through 2-3 freezing cycles or flush the water supply line (See Procedure 1.2) (A longer flushing time should be used for refrigerators with a built-in water dispenser to ensure that the water storage tank is completely flushed.)
2) Discard the ice and return the ice bin to the freezer
3) Wash, rinse, and sanitize the icemaker in place. This can be done with spray bottles containing a warm soapy wash solution, followed by clean rinse water, and then a sanitizing solution as in Procedure 1.6.c. Use the ice bin to collect the drainage from this process.
4) Remove the ice bin
5) Wash, rinse, and sanitize the ice bin
6) Place the icemaker back into service.

For additional information or assistance regarding this procedure, please contact the following:

California State Department of Health Services

Mary Wang, Ph.D.
Food and Drug Branch
(916) 445-2263

Chang Lee, Ph.D.
Food and Drug Branch
(916) 445-2263

David Abbott, R.E.H.S., Coordinator
Emergency Preparedness Office
(916) 323-3675

National Sanitation Foundation

Joe Philips, Chief
Food Service Equipment Program
(313) 769-5193